LaVerkin City Community Transportation Plan

August 2005

Prepared as a community involvement project by:

LaVerkin City

UDOT Planning Section

LaVerkin City
Community Transportation Plan

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1. Introduction

1.1. Background

LaVerkin lies on the north banks of the Virgin River opposite Hurricane, and three miles south of Toquerville. The Zion National Park-Grand Canyon Highway (State Highway 9) bisects the town, while the La Verkin Hot Mineral Springs, a popular bathing resort, is located in the Rio Virgin Canyon immediately south of the community. Rich farmlands make up La Verkin bench between La Verkin Creek on the west and the LaVerkin Fault on the east. The origin of the name is somewhat confusing. In a letter from John Steele and J.C.L. Smith to the Deseret News, dated 26 June 1852, La Verkin Creek is referred to as the "Leiver Skin." Perhaps it originally was "Beaver Skin"; it would have been easy for pioneer writers to transpose an "L" for a "B." Others, however, say that La Verkin is a corruption of the Spanish "La Virgen," referring to the nearby Virgin River.

Whatever the source of origin, early Washington County Court records also list the creek as "Leiversking." In time it was shortened to La Verkin.
The La Verkin bench was observed by Erastus Snow when his party explored the Virgin River Valley from Zion Canyon to Santa Clara during the fall of 1861. They were attempting to locate lands suitable for the Cotton Mission farmers. Snow opined that Virgin River water could be conveyed to the bench land, however, the others felt that the labor involved would be too expensive.

Almost thirty years later, Thomas Judd and Thomas P. Cottam had a survey made and started work on a canal. In June 1889 the La Verkin Fruit and Nursery Company was incorporated with a capital stock of $25,000.00. Its objectives were to establish nursery orchards and vineyards, to manufacture wine and liquor, and to promote fruit raising, stock raising, and general farming.

Work on the canal and tunnel was most difficult; a major part of the canal was made through the solid rock limestone of the precipitous cliff wall, other portions through talus slides that had broken off the limestone ledges above. A tunnel through the Kaibab

limestone escarpment east of the bench was eight hundred feet in length. It was worked on from both sides, and when the two crews met, the sections fitted together almost perfectly. A row of lighted candles from each end was used as a mark to keep the lines straight as the men on both sides of the ridge drove toward the center. They built a dam two miles up the river from the place where the tunnel penetrated the mountain. Water was turned into the ditch in April 1891.

Leaks in the canal where it coursed through gypsum formations plagued the project. When cement became available, the worst of the leaking places in the canal were cemented, and the canal gave less trouble. It wasn't until 1898 that a townsite was surveyed and brothers Joseph and Henry Gubler as well as James Pectol came to La Verkin with their families. The town flourished and gradually grew into an area of fruit production, turkey growing, and dairying.

The Southern Utah Power Company agreed to enlarge and cement the canal from the west entrance of the tunnel to the dam in exchange for the right to carry water in the canal to its power plant in the Virgin River canyon west of La Verkin. Later, in the 1980s, the open ditches in La Verkin were converted to a closed pressurized system.

Bubbling up beneath the ledges of the point where the Virgin River breaks through the LaVerkin Fault are the warm mineral waters of the La Verkin sulfur springs. Fathers Dominguez and Escalante probably visited the sulfur springs, since they named the stream the "Rio Sulfureo." The Indians

regarded the hot springs as sacred and healing spaces, available to friend or enemy. The grounds were preserved as a peaceful sanctuary for everyone. The springs became one of the first recreation spots for the early Mormon pioneers. They dammed up the springs sufficiently that people could bathe. During the years of canal building, the waters soothed and comforted the men who swung the picks and pushed the wheelbarrows.

Early settlers baptized their children in the warm waters at this point of the river. Sheep men dammed off the lower end of the springs for a dipping vat before the days of sheep-dip. The mineral water appeared to be good for the scabies. Washington County built a wooden bridge across the river below the springs, but floods washed it away. A second bridge was also destroyed. In 1916 the county replaced the wooden bridge with

a steel one, and later a high arched span was built a short distance downstream. Today the springs have been developed into an attractive "spa" with seven comfortable little pools in the grotto area. A swimming pool, dressing rooms, and restrooms are provided and there is a bed and breakfast facility for families on vacation.

For many years La Verkin town was a part of Toquerville precinct. It later came under county jurisdiction with its own justice of the peace and constable. In November 1927 residents and voters petitioned the Washington County Commission to constitute the town as a corporate body--an action that was granted that same year.

La Verkin presently is a growing, thriving community with paved streets, modern sewage system, an excellent elementary school, many beautiful new homes, and an expanding business section--all located in a magnificent scenic area.

See: Daughters of Utah Pioneers, Washington County Chapter, Under Dixie Sun (1950); Andrew Karl Larson, I Was Called to Dixie (1961); Angus M. Woodbury, "A History of Southern Utah and its National Parks," Utah Historical Quarterly (Vol. 12, 1944).

This information was provided from www.onlineutah.com, in an article written by Wesley P. Larsen

1.2. Study Need

The LaVerkin City has seen a 191.53% population increase within the last decade and a 150.85% population increase the decade before. From 1960 to 2000, the population has increased 929.32%. Population in the LaVerkin City area has gone through steady to rapid changes, but the overall trend shows very positive trend in the population. A well-established transportation plan is needed to provide direction for continual maintenance and improvements to LaVerkin City City's transportation system.

With the aging infrastructure of LaVerkin City's transportation system and the need for system improvements, a more extensive transportation plan is necessary for LaVerkin City and the surrounding area.

Some of the major transportation issues around the State are as follows:

- Safety
- Railroad crossings
- Trails (bicycle, pedestrian, & OHV)
- Signals
- City interchange aesthetics
- Connectivity of roadways
- Property access
- Truck traffic
- Alternate routes
- Speed limits

LaVerkin City recognizes the importance of building and maintaining safe roadways, not only for the auto traffic but also for pedestrians and bicyclists.

1.3. Study Purpose

The purpose of this study is to assist in the development of a Community Transportation Plan for LaVerkin City. This plan could be adopted by LaVerkin City as a companion document to the city's General Plan. With the community transportation plan in place the city can qualify for grants from the State Quality Growth Commission.

The primary objective of the study is to establish a solid transportation master plan to guide future developments and roadway expenditures. The plan includes two major components:

- Short-range action plan
- Long-range transportation plan

Short-range improvements focus on specific projects to improve deficiencies in the existing transportation system. The long-range plan will identify those projects that require significant advance planning and funding to implement and are needed to

accommodate future traffic demand within the study area.

1.4. Study Area

The study area includes LaVerkin City, and land adjacent to it that is in Washington County. A general location map is shown in Figure 1-1. A more detailed map of the study area and city limits is shown in Figure 1-2. The study area was developed by LaVerkin City and approved by the LaVerkin City Committee Transportation Master Plan Technical Advisory Committee.

The roadway network within the study area includes SR-9 & SR-17. Each of these roadways provides a vital function to LaVerkin City City, to the rest of Washington County and to the State of Utah. SR-9 connects all points southwest and east including Hurricane and the Utah/Arizona State Line. SR-17 connects to I-15 to the West. I-15 is a region commuter and commercial trucking route. SR-9 connects areas to the East and West including an important route to the St. George and Zion National Park. SR-9 is the Main Street in LaVerkin City and serves local business and community circulation needs. These roadways along with the local road network are shown in Figure 1-2.

1.5. Study Process

The study, which began in August 2005, is proceeding as a cooperative effort between LaVerkin City, UDOT, and local community members. It is being conducted under the guidance of LaVerkin City Officials.

The following individuals participated in the initial meetings to provide input used to create this document. This group listed below will be referred to as the Technical Advisory Committee or "TAC" for this document.

- **Benjamin Reeves, LaVerkin City Manager**
- **Gary McKell, City Council**
- **Ann Slack, City Council**
- **Phil, Jensen, City Council**
- **Karl Wilson, LaVerkin Planning Commission and Next LaVerkin City Mayor**
- **Lee Wheeler, Alt City Planner**
- **Debi Groves, City Recorder**
- **June Jeffery, Deputy Recorder**

- **Ray Justice, Planning & Zoning Chair**
- **Marilyn Hardy, Planning Commission**
- **Maurine Roberts, Planning Commission**
- **Pat Andregg, Planning Commission**
- **Anna Andregg, Water Board**
- **Ama May Moss, Beautification Committee**
- **Steve Alford, Beautification Committee**
- **Jonathan Zundel, Developer**
- **Douglas Gubler, LaVerkin City Public Works Director**
- **Kay Wheeler, Citizen**
- **Paul Schultz, Citizen**
- **Judy Schultz, Citizen**
- **Margaret Haucack, Citizen**
- **Lloyd Watkins, LaVerkin City Police Chief**

Figure 1-1. LaVerkin City Study Area Map

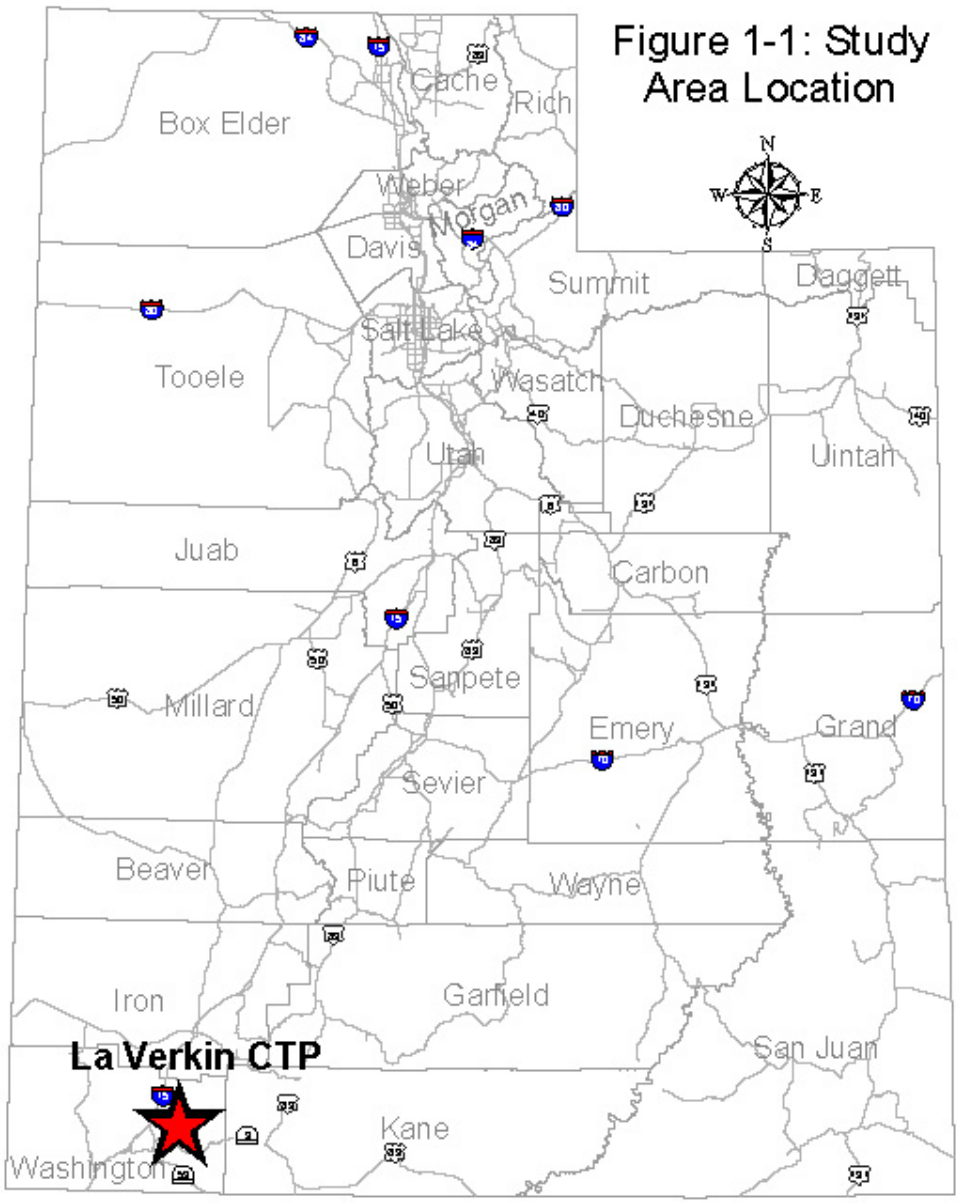


Figure 1-2. Study Vicinity Map

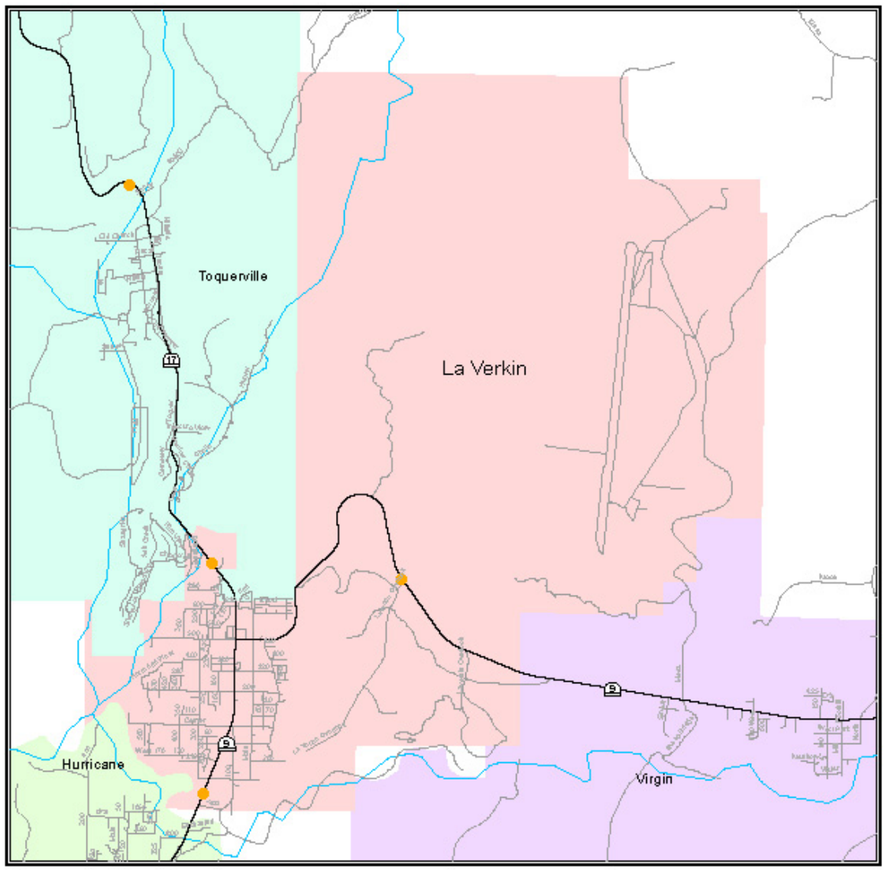
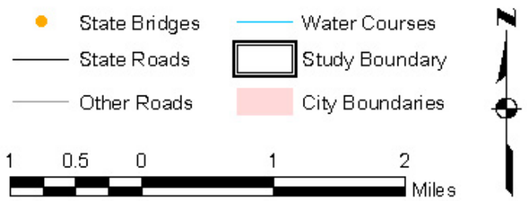


Figure 1-2: La Verkin
Study Area Vicinity



The study process for the LaVerkin City Community Transportation Plan consists of three basic parts: (1) inventory and analysis of existing conditions, (2) projection of future conditions, and (3) development of a community transportation plan (TMP). This process involves the participation of the TAC for guidance, review, evaluation and recommendations in developing the TMP to include development of future projects for the identified study area.

The TAC will evaluate each part of the study process. Their comments will be incorporated into the study's final report draft. The remainder of the final report draft will focus on the recommendation and implementation portion of the transportation plan program. Transportation projects that will be recommended for the short-term and long-range needs will be developed based on the TAC's recommendations and concurrence.

The study process allows for the solicitation of input from the public at two TAC workshops. This public participation element is included in the study process to ensure that any decisions made regarding this study are acceptable to the community.

The first TAC workshop provides an inventory and analysis of existing conditions and identification of needed transportation improvements. The second TAC workshop will focus on prioritization of projects, estimation of project costs, and discussion of the funding processes.

The TAC is expected to recommend those comments that are to be incorporated into the report and applicable to the goals of this study. The final report draft will be submitted to the City for review and comments.

Upon local review of the draft report, UDOT will prepare appropriate changes and submit the final report to the City for approval. The final report will describe the study process, findings and conclusions, and will document the recommended transportation system projects and improvements.

2. Existing Conditions

An inventory and evaluation of existing conditions within the study area was conducted to identify existing transportation problems or issues. The results of the investigation follow.

2.1. Land Use

In order to analyze and forecast traffic volumes, it is essential to understand the land use patterns within the study area. Much of the City is zoned Residential, but there are also many issues dealing with commercial and industrial properties. By analyzing the patterns or changes in land use, we can better predict the ever-changing transportation needs.

The LaVerkin City Zoning map follows in Appendix B of this Document.

2.2. Environmental

In Utah there are a variety of local environmental issues. Each of the cities and counties need to look at what are the environmental issues in their areas on a case-by-case basis. There are many resources that can help local entities to determine what issues need to be addressed and how any problems that may exist can be resolved.

Some of the environmental concerns around the State are wetlands, endangered species, archeological sites, and geological sites among other issues. Environmental concerns should be addressed when looking at an area for any type of improvement to the transportation system. Protecting the environment is a critical part of the transportation planning process.

2.3. Socio-Economic (Census Brief: Cities and Counties of Utah, May 2001)

LaVerkin City ranks 79th out of 235 incorporated cities and towns for population in the State of Utah. Historical growth rates have been identified for this study, because past growth is usually a good indicator of what might occur in the future. Chart 2-1 identifies the population growth over the past 50 years for the State of Utah, Washington County and LaVerkin City. Chart 2-2 identifies that population change in LaVerkin City has ranged from 153.56% between 1970 and 1980 to (–5.68%)

between 1950 and 1960, while growth in the State has gained between 18 and 38 percent during the past 50 years.

Chart 2-1 Populations

Year	Utah	Washington County	LaVerkin City
1950	688,862	9,836	387
1960	890,627	10,271	365
1970	1,059,273	13,669	463
1980	1,461,037	26,065	1,174
1990	1,722,850	48,560	1,771
2000	2,233,169	90,354	3,392

Source: U.S. Bureau of the Census
http://www.govenor.utah.gov/dea/OtherPublications.html

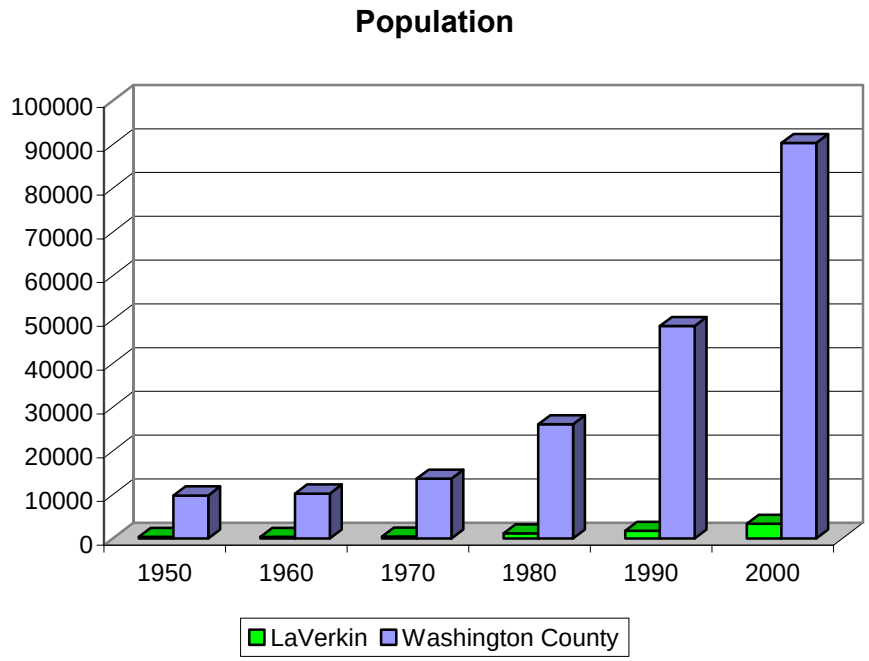


Chart 2-3 identifies yearly population growth rates for the State of Utah and Washington County.

Though the State population has grown every decade from 1950 until 2000, LaVerkin City has also showed a fairly steady rate of growth in population over the same period.

LaVerkin City has some unique demographic characteristics when compared with the State, particularly with age demographics. In the 25 to 54-age category, the State is at 38.6% the County is at 32.0% and the City is at 34.9%. For the 65+-age category, the State is at 8.5%, the County is at 17.0% and the City is at 13.1%. The State's median age is 27.1 years and the County's median age is 31.0 years, City's median age is 28.8 years. Another interesting statistic is that of Veteran status with State at 10.7%, County at 15.1%, and LaVerkin City at 16.2%.

The 2000 median household income in LaVerkin City is $35,949, compared to the State median household income of $45,726.

The unemployment rate in LaVerkin City was 4.4 percent in 2000, slightly greater than that of the State at 3.4 percent. Washington County was slightly better than the State with an unemployment rate of 3.2 percent. According to the Utah Department of Employment Security (UDES), in 2000 there were approximately 1,294 employed people in LaVerkin City or 55.5% of the population. The city has 103 unemployed people, which is 4.4% of the population. There are 35,646 employed people in Washington County or 54.4% percent of the population. The county has 2,065 people unemployed, which is 3.2% of the population.

The majority of employees in Washington County work in three primary employment sectors: Trade, Services & Government as shown in Chart 2-5. In the county, these sectors make up 72.73% of the labor force. Another interesting note was that housing built from 1990-2000 were 45.8%of total for LaVerkin City compared to 25% for the state. Also homes built before 1939 were 3.1% of the total for LaVerkin City with 10% for the state.

Chart 2-2. Population Change

Decade	State of Utah	Washington County	LaVerkin City
1950-1960	29.29%	4.42%	-5.68%
1960-1970	18.94%	33.08%	26.85%
1970-1980	37.93%	90.69%	153.56%
1980-1990	17.92%	86.30%	50.85%
1990-2000	29.62%	86.07%	91.53%

Source Data: U.S. Bureau of the Census
http://www.govenor.utah./dea/OtherPublications.html

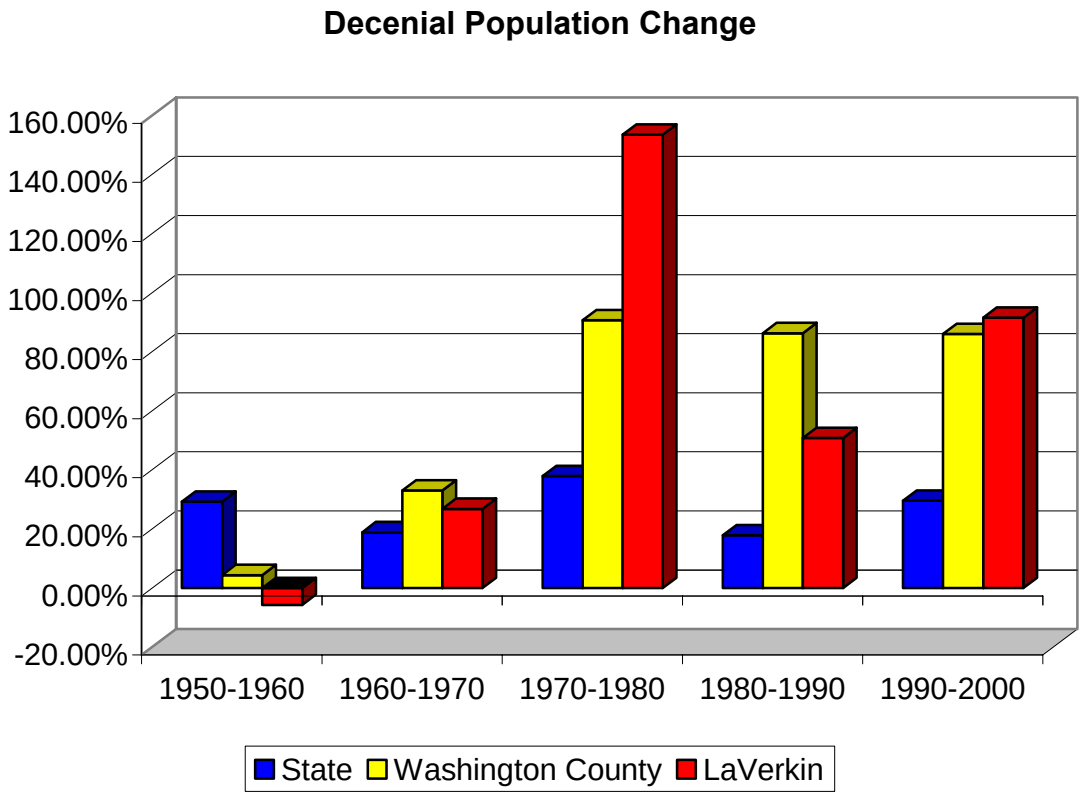
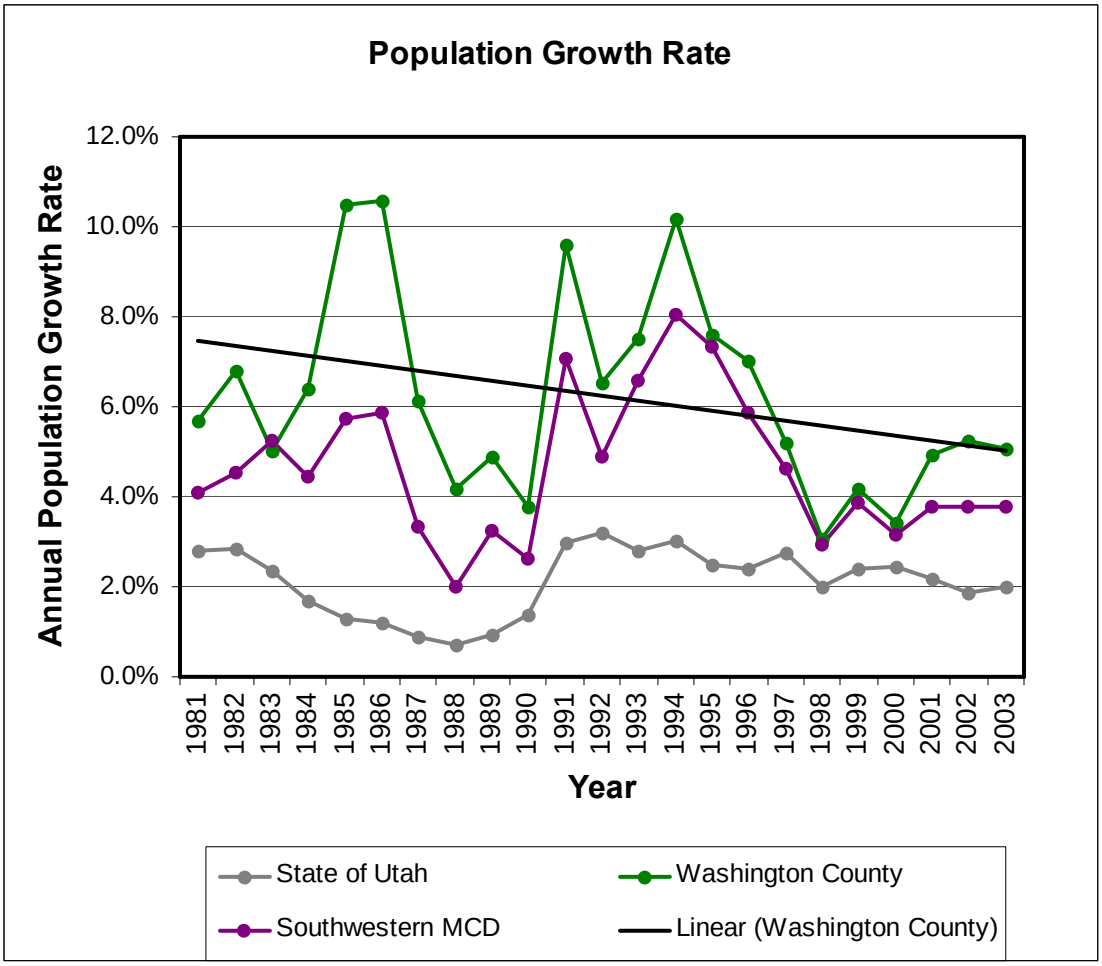


Chart 2-3. Population Growth Rate (1980-2000)

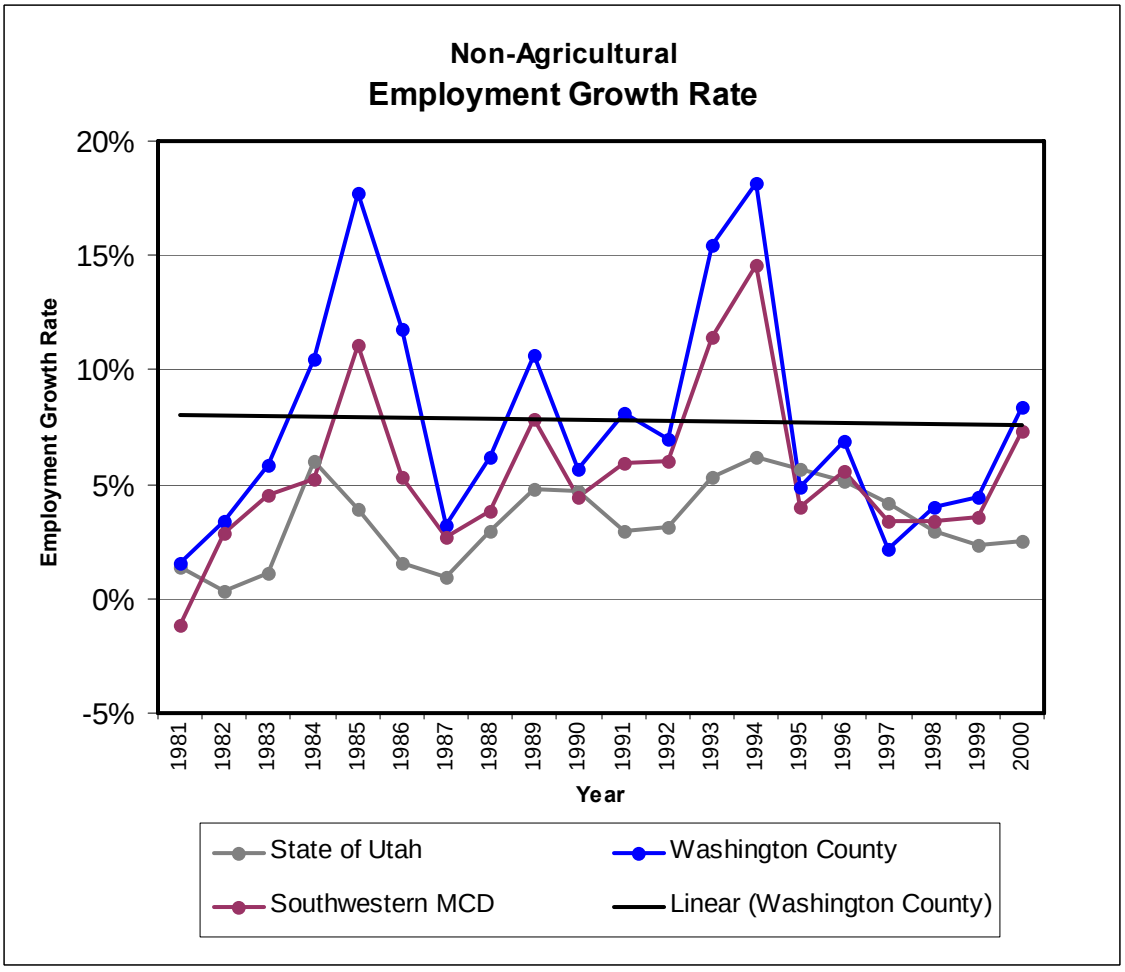


MCD = Multi-County Districts

Southwestern MCD = Beaver, Garfield, Iron, Kane & Washington Counties

Source: Governors Office of Planning and Budget
http://www.governor.utah.gov/dea

Chart 2-4. Employment Growth Rate (1980-2000)



MCD = Multi-County Districts

Southwestern MCD = Beaver, Garfield, Iron, Kane & Washington Counties

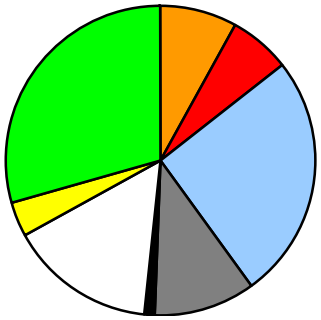
Source: Governors Office of Planning and Budget
http://www.governor.utah.gov/dea

Chart 2-5. Employment Occupation Sectors (1980-2000), Washington County

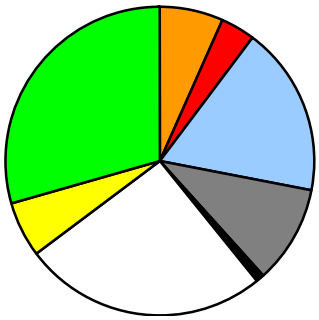
	Sector	1980	1990	2000	Δ% 1980-2000
	Construction	8.22%	6.75%	11.10%	587.71%
	FIRE	6.25%	3.48%	3.91%	218.87%
	Government	25.81%	18.01%	14.66%	189.21%
	Manufacturing	10.68%	10.51%	7.18%	241.98%
	Mining	1.07%	0.71%	0.57%	168.57%
	Services	15.35%	25.81%	27.11%	799.10%
	TCPU	3.54%	5.85%	4.89%	603.90%
	Trade	29.63%	29.70%	30.96%	431.82%

FIRE = Finance, Insurance & Real Estate
TCPU = Telecommunications & Public Utilities

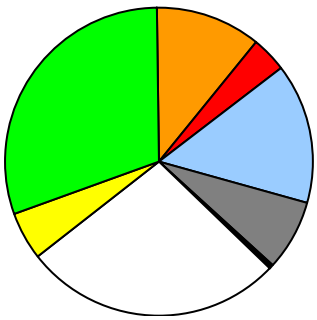
1980 Employment Sectors



1990 Employment Sectors



2000 Employment Sectors



Source: Governors Office of Planning and Budget

http://www.governor.utah.gov/dea/HistoricalData.html

2.4. Functional Street Classification

This document identifies the current functional characteristics of the selected roadway network of LaVerkin City.

Functional street classification is a subjective means to identify how a roadway functions when a combination of the roadway's characteristics are evaluated. These characteristics include; roadway configuration, right-of-way, traffic volume, carrying capacity, property access, speed limit, roadway spacing, and length of trips using the roadway.

The primary functional classifications used in categorizing selected roadways of LaVerkin City are: Principle Arterial, Minor Arterial and Local. An Arterial's function is to provide traffic mobility at higher speeds with limited property access. Traffic from the local roads is gathered by the Collector system, which provides a balance between mobility and property access trips. Local streets and roads serve property access based trips and these trips are generally shorter in length.

The LaVerkin City area is accessed by SR-9 & SR-17 both via I-15 from the west. SR-9 continues to the east to connect the region with Zion National Park. SR-59 also brings traffic to the LaVerkin City area from the south as it connects with SR-9 South of the city limits.

The functionally classified highway system is currently being revised statewide. The current functionally classified system generally defines the higher traffic roads, so only minor additions or changes will be required.

2.5. Bridges

There are four bridges on the state system located in the study area that could be eligible for federal bridge maintenance, rehabilitation, or replacement funds. Bridges are maintained and minor repairs made with maintenance funds. A bridge is rehabilitated or replaced as it deteriorates over time and

as traffic volumes increase. (Figure 10 Bridge Sufficiency Rating)

Table 2-1 compares the bridges in the study area and identifies their sufficiency rating and location. Sufficiency rating indicates current condition of the structure with a rating of 100 showing a structure that is in excellent shape. A rating nearing 50 will reveal a structure that is in need of attention and is eligible for federal funding.

Figure 2-2. Functional Classification Map

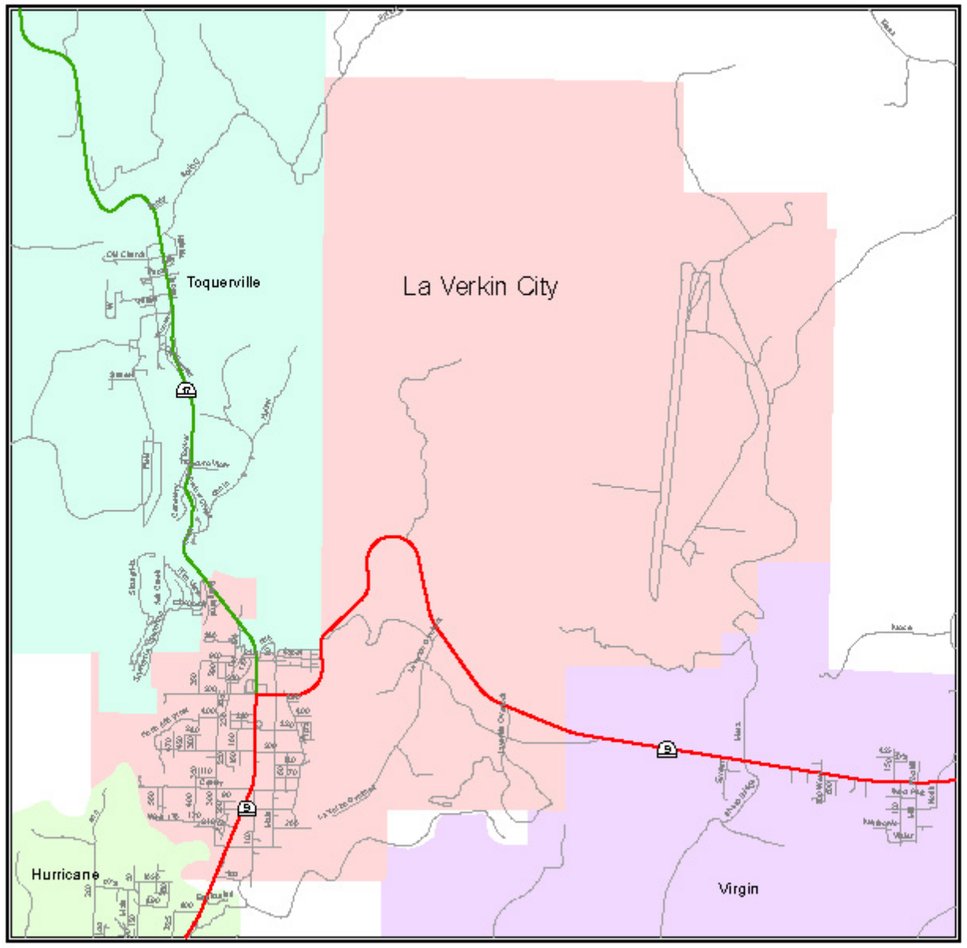


Figure 2-2: Existing State and Federal Routes Classification

Functional Class

- Interstate
- Freeway Expressway
- Other Principal Arterial
- Minor Arterial
- Collector
- Minor Collector
- Local
- Other Roads
- City Boundaries

NOTE: Proprosed Routes are indicated by dashed line.

N

1 0.5 0 1 2 3 Miles

Figure 2-3. Bridge Sufficiency Map

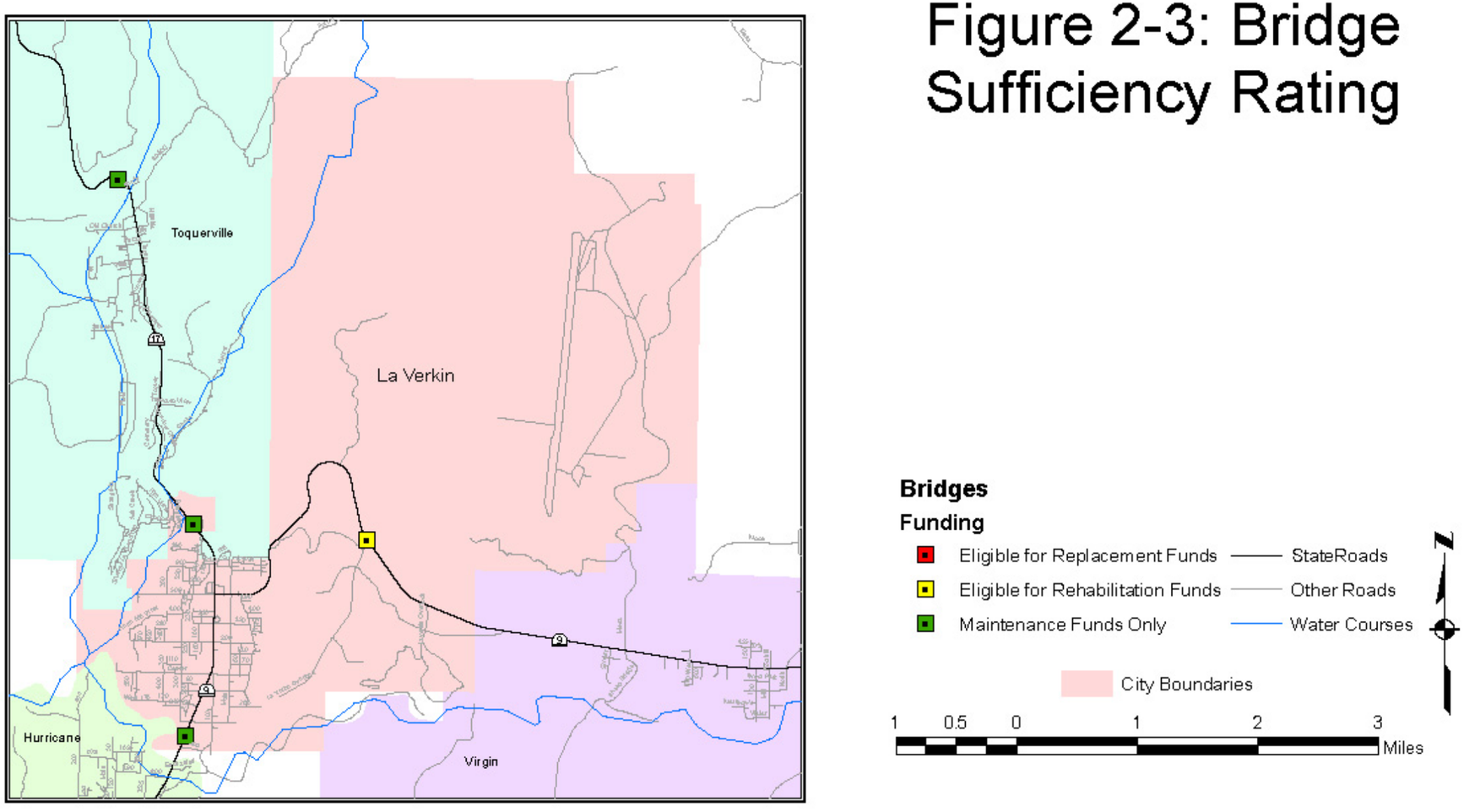


Figure 2-3: Bridge Sufficiency Rating

Table 2-1. Bridge Sufficiency Ratings

Source: Utah Department of Transportation/Structures Division

Number	Location	Maximum Span	No. Lanes & Road Width	Sidewalk	Sufficiency Rating
F-589	.7 Miles North of LaVerkin Junction on SR-17	38.1 Meters	2 Lanes, 16.5 Meters	Yes	94.5
F-550	North Edge of Toquerville on SR-17	34.4 Meters	2 Lanes, 16.5 Meters	Yes	96.9
C-915	.3 Miles North of Hurricane over Virgin River on SR-9	119.48 Meters	2 Lanes, 15.32 Meters	Yes	90.4
E-426	2.9 Miles East of LaVerkin Junction over Dry Wash on SR-9	8.2 Meters	2 Lanes, 12.2 Meters	No	68.4

2.6. Traffic Counts

Recent average daily traffic count data were obtained from UDOT. Table 2-2 shows the traffic count data on the key roadways of the study area. The number of vehicles in both directions that pass over a given segment of roadway in a 24-hour period is referred to as the average annual daily traffic (AADT) for that segment.

These are averages for the entire year. LaVerkin City experiences a significant increase in traffic during the summer months. UDOT maintains 86 continuously operated automatic traffic recorders (ATR) throughout the state highway system. ATRs collect data continuously throughout the year in order to determine monthly, weekly, daily, and hourly traffic patterns. One ATR is located in or near the study area on SR-9.

The following point summarize the 2003 data from the ATR at this location located on SR-9; 1.415 Miles East of I-15, 1.3 Miles West of SR-318 in Hurricane (Station 402).

- August was the highest volume month (Chart 2-7).
- January was the lowest volume month (Chart 2-7).
- The highest daily volumes occurred on Friday (Chart 2-8).
- The lowest daily volumes occurred on Sunday (Chart 2-8).

The peak months of May thru June & August is consistent with recreational usage associated with traffic traveling through the area on their way to Zion National Park?

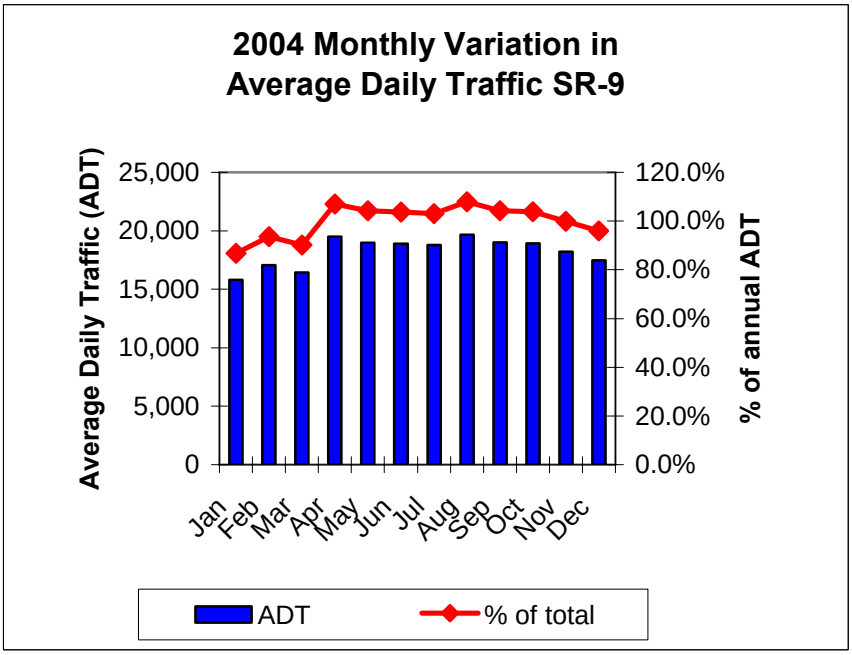
The hourly traffic shows a clear average peak hour of around 3:00 TO 5:00 pm (Chart 2-9). This is consistent with an afternoon commuter peak.

A map illustrating existing and future traffic, peak season traffic, and roadway capacities is presented in the Traffic Forecast section 3.2.

Table 2-2. Average Annual Daily Traffic

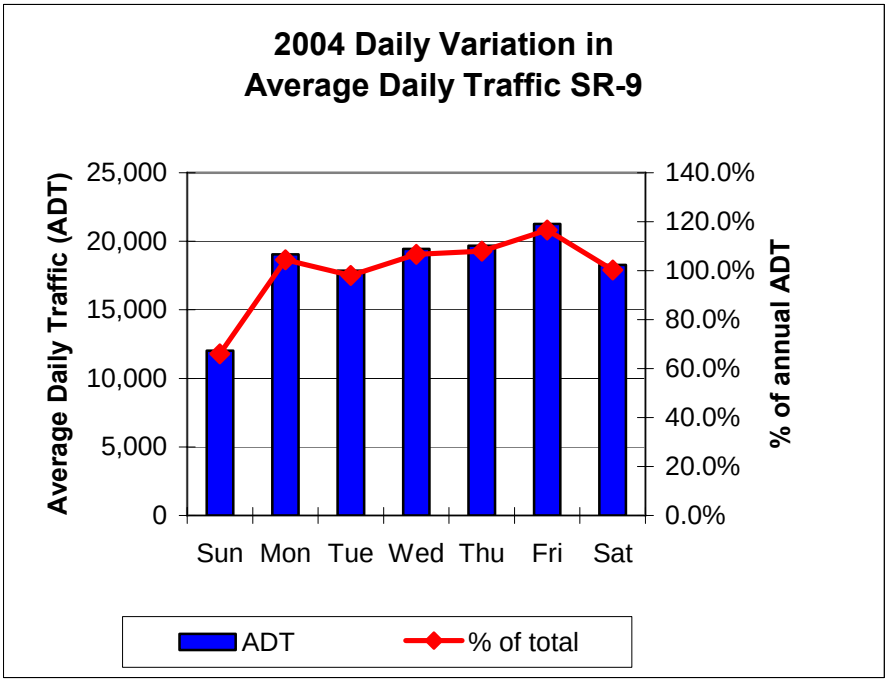
Road	Segment	Year	AADT
SR-9	West Incorporated City Limits of LaVerkin City	2004	13,175
SR-9	Junction SR-17 in LaVerkin City	2004	4,780
SR-9	East Incorporated Limits of LaVerkin City	2004	4,115
SR-17	Junction SR-9	2004	4,990
SR-17	North Incorporated Limits of LaVerkin City	2004	3,185

Chart 2-7. Monthly ADT on SR-9; 1.415 Miles East of I-15



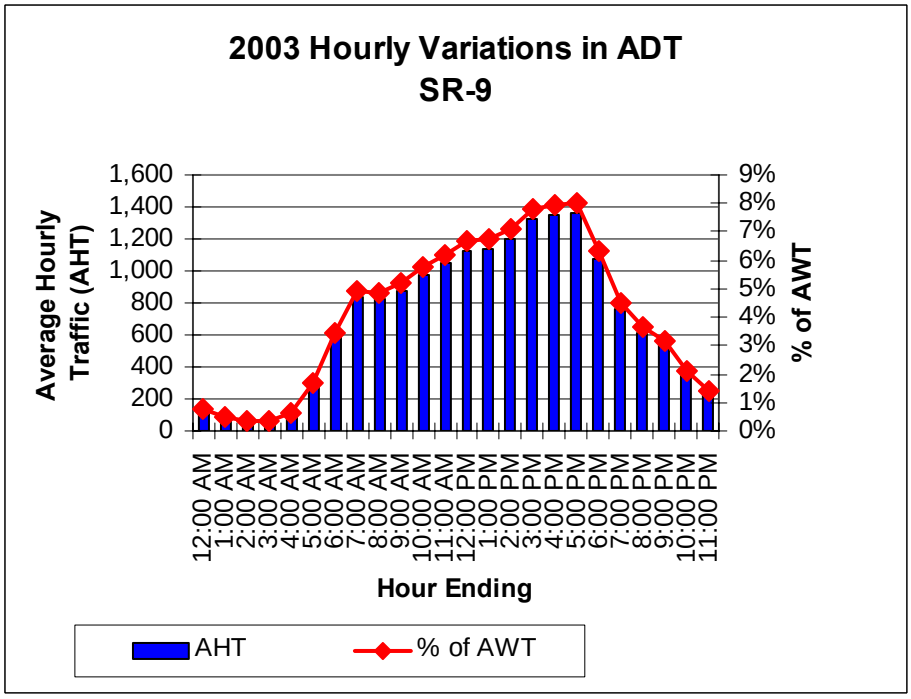
Source: Utah Department of Transportation

Chart 2-8. Daily ADT on SR-9; 1.415 Miles East of I-15



Source: Utah Department of Transportation

Chart 2-9. Hourly ADT on SR-9; 1.415 Miles of I-15



Source: Utah Department of Transportation

2.7. Traffic Accidents

Traffic accident data was obtained from UDOT's database of reported accidents from 2004.Table 2-3 summarizes the accident statistics for those segments for the year 2004. Additional information includes the average daily traffic, the number of reported accidents, and the accident rates. The roadway segment accident rates were determined in terms of accidents per million vehicle miles traveled. The crash rates for each roadway segment are compared to the expected crash rate for similar facilities across the state.

Upon review of the accident data for the state system in the area, there appears to be higher than expected accident rates at the following locations:

- **On SR-9 from MP 10 to MP 11.**
- **On SR-9 from MP 11.14 to MP 13.16.**

The remainder of the state system shows a lower than expected accident rate. Figure 2-4 shows accident data taken from 2001-2003, which shows various segments of the state highway system and associated accident data.

LaVerkin City may wish to review the accident history for the local street system to identify any specific accident hot spot locations.

Table 2-3. Crash Data 2004

Road	From Milepost	End Milepost	ADT (2004)	# Crashes (2004)	Crash Rate **	
					Actual	Expected*
9	10	11	19,390	15	2.60	1.64
9	11.01	11.13	18,070	0	0.00	1.64
9	11.14	12.42	13,175	9	1.78	1.64
9	12.43	13.16	4,780	2	1.75	1.48
9	13.17	16.86	4,115	0	0.00	1.48
9	16.87	18.88	3,935	1	0.37	1.56
17	0	0.85	4,990	1	0.65	1.56
17	0.86	3	3,185	3	1.30	1.56
17	3.01	4.56	2,070	1	0.60	1.82

* Statewide average accident rates for functional class and volume group.
** Accident rates are per million vehicle miles traveled
Red indicates higher than expected rates of accidents

Figure 2-4. State Road Crash Rates

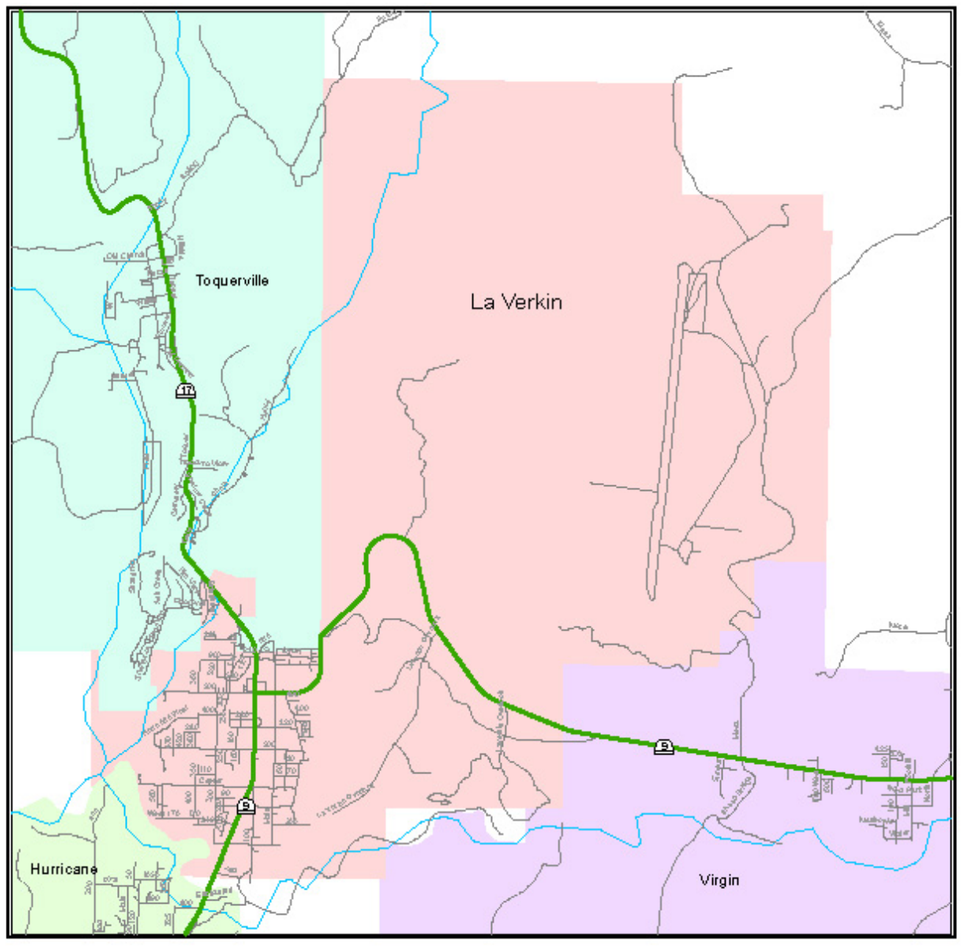


Figure 2-4: State Road Safety Index

State Roads

Safety Index Group

- Low
- Medium
- High
- Other Roads
- Water Courses
- City Boundaries

N

1 0.5 0 1 2 3 Miles

2.8. Bicycle and Pedestrian

The Federal Highway Administration recognizes the increasingly important role of bicycling and walking in creating a balanced, intermodal transportation system, and encourages state and local governments to incorporate all necessary provisions to accommodate bicycle and pedestrian traffic. As LaVerkin City continues to grow, the City should consider alternative transportation modes by adopting a “complete streets” philosophy. This type of all-inclusive planning process will help to create a more bicycle-friendly and walkable community.

2.8.1. Biking/Trails

The City does not currently have designated bike lanes on any local or state roads. Additionally, most of the roadways in the area lack the necessary shoulder-width to provide for safe bicycle travel. The lack of shoulders is most evident on the main highway, since a project expanding the road from two-lanes to five-lanes eliminated any excess right-of-way. With less than desirable shoulder-width on this highway, cyclists of all skill levels must now travel in the travel lane.

The City maintains the local roads and sweeping is done on an as needed basis to keep them clear of dirt and debris. This activity benefits bicyclists as it reduces potential hazardous conditions.

LaVerkin has a defined developing trails system. Therefore, development of a trails system for all user types is a priority for the City. This completed system should include trails for bicyclists, pedestrians, equestrian, and off-highway-vehicles (OHV).

Due to the rural nature of LaVerkin, there are a number of OHV enthusiasts within the community. There is support for this activity and riders have been allowed to travel along the local roads. Although OHV use is relatively high, there has not been the associated problem with out-of-bound riding that sometimes occurs.

There are a number of bicycle-touring groups with planned routes that travel through LaVerkin. With the draw of Zion National Park and other scenic locations, additional cycling tourists are to be expected.

2.8.2. Pedestrians

LaVerkin City has some sidewalks in place to provide for pedestrian traffic, most in the downtown and school areas. The sidewalks that have been constructed are in fairly good condition. There are sidewalks located on both sides of SR-9 and along one side of SR-17; the City intends to install sidewalk on the other side of SR-17 as well. This continued development would create a safer and more pedestrian-friendly community, allowing continuity in pedestrian traffic flow. The City would like to have a park strip put into place along State Street to provide a

safe buffer for the school age kids as they travel to and from school.

2.9. Public Transportation

At this time there is no public transportation service available in LaVerkin. The nearest intercity bus service is provided by Greyhound with a stop in St. George, Utah, although there is no local city bus service linking LaVerkin with St. George. The nearest intercity rail passenger service is provided by Amtrak's "California Zephyr" which stops in Provo and Salt Lake City. Scheduled airline service is provided by regional airlines at the St. George Airport, with primary jet airline operations located at both Salt Lake City and Las Vegas International Airports.

2.10. Freight

Located at the junction of state routes 9 and 17, LaVerkin is experiencing a slow but steady increase in truck traffic, primarily on SR 17. Although neither route is a primary freight route, urban growth is driving an increase in local delivery and construction-related trucking.

Long distance trucks are more and more making use of SR 17 to by-pass congestion in Hurricane and St. George, as they are en route to and from I-15 to the north and SR 59 to the south. Other than local delivery operations, trucks are not allowed on SR 9 through Zion National Park.

There is no railroad service provided to the LaVerkin/Hurricane/St. George area, with the nearest such service to be found in either Cedar City or Las Vegas.

Limited air parcel and airfreight service is available in St. George, with full air cargo operations found in Salt Lake City and Las Vegas.

2.11. Aviation Facilities & Operations

There is no airport in LaVerkin, with the nearest aviation facilities being located in Hurricane and St. George. Commercial aviation services are found in St. George, Las Vegas, Cedar City and Salt Lake City.

2.12. Revenue

Maintenance of existing transportation facilities and construction of new facilities come primarily from revenue sources that include the LaVerkin City general fund, federal funds and State Class C funds.

Financing for local transportation projects consists of a combination of federal, state, and local revenues. However, this total is not entirely available for transportation improvement projects, since annual operating and maintenance costs must be deducted from the total revenue. In addition, the City is limited in their ability to subsidize the transportation budget from general fund revenues.

2.12.1. State Class B and C Program

The distribution of Class B and C Program monies is established by state legislation and is administered by the State Department of Transportation. Revenues for the program are derived from State fuel taxes, registration fees, driver license fees, inspection fees, and transportation permits. Twenty-five percent of the funds derived from the taxes and fees are distributed to cities and counties for construction and maintenance programs.

Class B and C funds are allocated to each city and county by the following formula:

50% based on the population ratio of the local jurisdiction with the population of the

State, 50% based on the ratio that the Class B roads weighted mileage within each county and the class C roads weighted mileage within each municipality bear to the total class B and Class C roads weighted mileage within the state. Weighted means the sum of the following: (i) paved roads multiplied by five; (ii) graveled road miles multiplied by two; and (iii) all other road types multiplied by one. (Utah Code 72-2-108) For more information go to UDOT's homepage @ www.udot.utah.gov, tab on "Doing Business" select the tab for "Local Government Assistance" here you will find the Regulations governing Class B&C funds.

Class B and C funds can be used for maintenance and construction of highways, however thirty percent of the funds must be used for construction or maintenance projects that exceed $40,000. Class B and C funds can also be used for matching federal funds or to pay the principal, interest, premiums, and reserves for issued bonds.

The table below identifies the ratio used to determine the amount of B and C funds are allocated.

Apportionment Method of Class B and C Funds

Based on	Of
50%	Roadway Mileage *Based on Surface Type Classification (Weighted Measure) Paved Road (X 5) Graveled Road (X 2) Other Road (X 1)
50%	Total Population

LaVerkin City received $148,453.75 in 2004 for its Class C fund allocation and is due to receive $115,878.57 in 2005.

2.12.2 Federal Funds

There are federal monies that are available to cities and counties through federal-aid programs. The funds are administered by the Utah Department of Transportation. In order to be eligible, a project must be listed

on the five-year Statewide Transportation Improvement Program (STIP).

The Surface Transportation Program (STP) provides funding for any road that is functionally classified as a collector street or higher. STP funds can be used for a range of projects including rehabilitation and new construction. The Joint Highway Committee programs a portion of the STP funds for projects around the State for urban areas. A portion of the STP funds can be used in any area of the State, at the discretion of the State Transportation Commission.

Transportation Enhancement funds are allocated based on a competitive application process. The Transportation Enhancement Advisory Committee reviews the applications and then a portion of those are recommended to the State Transportation Commission for funding. Transportation enhancements include 12 categories ranging from historic preservation, to bicycle and pedestrian facilities, to water runoff mitigation. Other funds that are available are State Trails Funds, administered by the Division of Wildlife Resources.

The amount of money available for projects specifically in the study area varies each year depending on the planned projects in UDOT's Region Four. As a result, federal aid program monies are not listed as part of the study area's transportation revenue.

2.12.3 Local Funds

LaVerkin City, like most cities, has utilized general fund revenues in its transportation program. Other options available to improve the City's transportation facilities could involve some type of bonding arrangement, either through the creation of a redevelopment district or a special improvement district. These districts are organized for the purpose of funding a single, specific project that benefits an identifiable group of properties. Another source of funding is through general obligation bonding arrangements for projects felt to be beneficial to the entire entity issuing the bonds.

2.12.4 Private Sources

Private interests often provide alternative funding for transportation improvements. Developers construct the local streets within the subdivisions and often dedicate right-of-way and participate in the construction of collector or arterial streets adjacent to their developments. Developers can be considered as an alternative source of funds for projects because of the impacts of the development, such as the need for traffic signals or street widening. Developers should be expected to mitigate certain impacts resulting from their developments. The need for improvements, such as traffic signals or street widening can be mitigated through direct construction or impact fees.

3. Future Conditions

3.1. Land Use and Growth

LaVerkin City's Community Transportation Plan must be responsive to current and future needs of the area. The area's growth must be estimated and incorporated into the evaluation and analysis of future transportation needs. This is done by:

- Forecasting future population, employment, and land use;
- Projecting traffic demand;
- Forecasting roadway travel volumes;
- Evaluating transportation system impacts;
- Documenting transportation system needs; and
- Identifying improvements to meet those needs.

This chapter summarizes the population, employment, and land use projections developed for the project study area. Future traffic volumes for the major roadway segments are based on projections utilizing 20 years of traffic count history. The forecasted traffic data are then used to identify future deficiencies in the transportation system.

3.1.1. Population and Employment Forecasts

The Governor's Office of Planning and Budget develop population and employment projections. The current population and employment levels, as well as the future projections for each are shown for LaVerkin City and Washington County in the following table.

Population and Employment

Year	City	County	
	Population	Population	Employment
2000	3,392	90,354	45,465
2030	9,003	218,198	118,024

3.1.2 Future Land Use

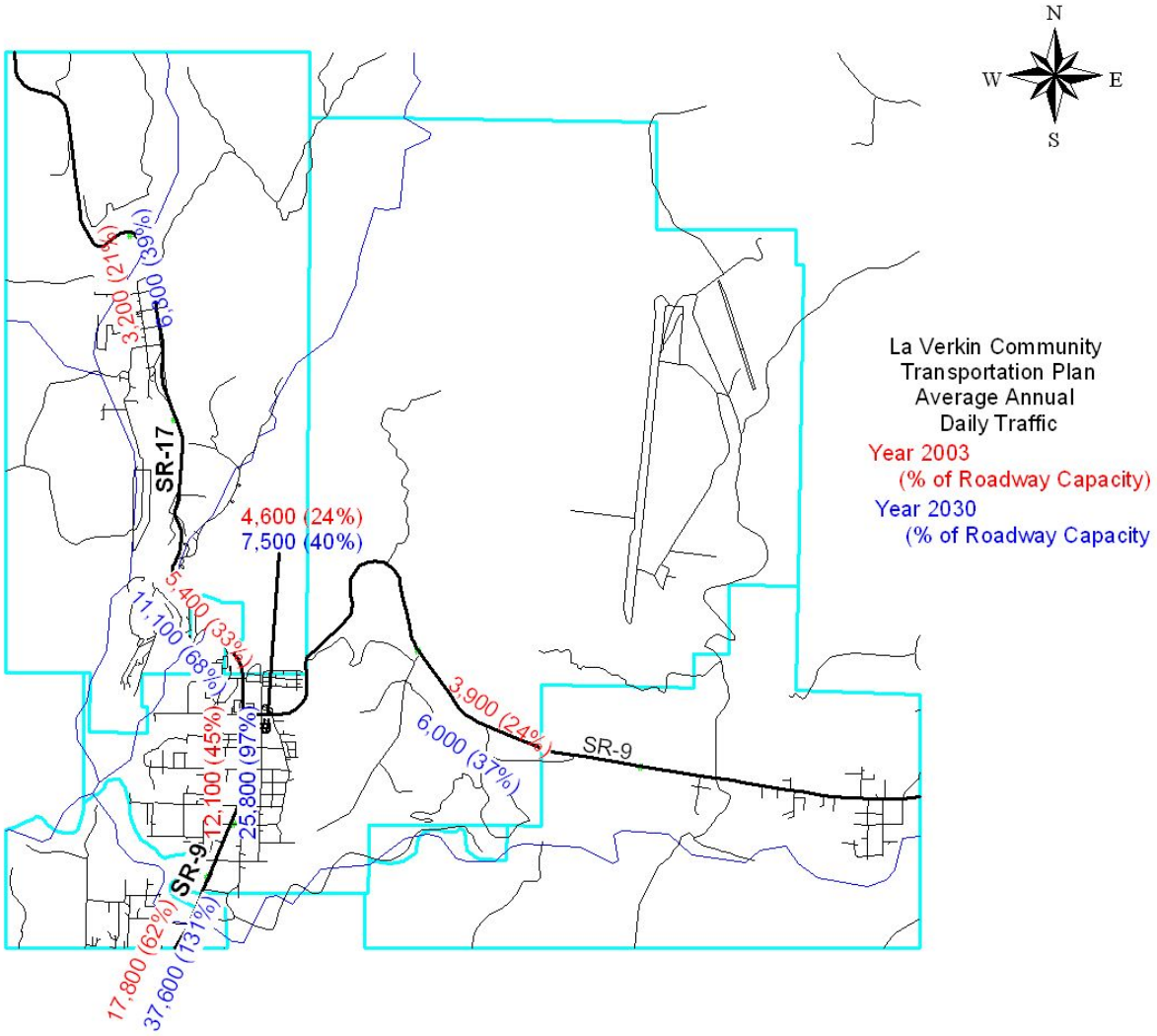
The City has an annexation plan that describes where it plans to grow. Some areas for developments were discussed during the course of the Community Transportation Plan. Updated Land Use documents can be found in the LaVerkin City General Plan.

While specific development plans change with time, it is important to note possible areas of development within the LaVerkin City area. Commercial and industrial growth is also important in understanding transportation needs.

3.2. Traffic Forecast

Traffic in the LaVerkin City area is growing and will continue to grow. Although the population projections from the Governors Office of Planning and Budget show a 4% annual growth, traffic has historically grown at about 5% to 6%. This traffic growth is associated with the bedroom community aspects that LaVerkin City provide to St. George City and recreational traffic. It is estimated that traffic volumes on State Street will grow about 4.4% per year. The map below shows average annual daily traffic for years 2002 and 2030. Also shown is the percentage of the roadway capacity the traffic will reach. The map illustrates that SR-9 south of the SR-17 junction will have capacity issues by the year 2030 if historical trends continue.

Figure 3-1. Average Annual Daily Traffic
yr. 2002; yr. 2003



4. Transportation Improvement Projects

4.1. Current State Transportation Improvement Program (2004-2008 STIP)

At the present time there are several projects under consideration and investigation in the LaVerkin City area. Currently in the STIP are the following Projects:

- Preliminary Engineering (Environmental) on Route 9; Hurricane to LaVerkin
- Asphalt Pavement Reconstruction/Widening on Route 9; Hurricane to LaVerkin

Also, this project is currently listed on the State of Utah's Long Range Plan, Utah Transportation 2030:

- Reconstruct/Interchange at I-15 on Route 17; from SR-9 in LaVerkin to West Side of I-15

4.2. Recommended Projects

The following list identifies the seven projects that have been identified as having the highest priority to the LaVerkin City Transportation Advisory Committee. These needs were identified through a series of meetings where the TAC identified the needs and set priorities for projects.

- **Landscaping along SR-9 (State Street), including the northeast corner of SR-9/SR-17 Junction**
- **Sidewalk Improvements Citywide**
- **Speed Review on SR-9 (State Street) thru City Limits**

- **LaVerkin/Hurricane Pedestrian Bridge Crossing SR-9 (State Street)**
- **Gateway features at City Entrances**
- **Open Tunnel to Sand Traps as Recreational Trail**
- **Alternate Route Study for vehicular traffic, Possibly Hot Springs Bridge location**

Additionally, many concerns and issues were identified which are found on the attached list.

Table 4-1 Transportation needs & Cost Estimates

LaVerkin City Transportation Needs and Cost Estimates

	Project Description / Concept					
Route	**State Highway Projects (LRP)**	**Start Point**	**End Point**	**Length or Quantity**	**Improvement**	**Estimated Project Cost**
SR-9	Turn Lane at SR-9 (500 North) and 100 East (Valley View Drive)				Re-Stripe	$10,000
SR-9	Turn Lane at SR-9 (500 North) and Main Street				Re-Stripe	$10,000
SR-9	Check Directional Signage WB of SR-9/SR-17 Junction (place at light)				Signage	$1,000
SR-9	Widen SR-9 from Main Street to New Top Side Development				Roadway	$8,000,000
SR-9	Widen Shoulders on SR-9 along State Street Parking at Various Locations	Virgin River Bridge	Junction SR-17		Roadway	$1,000,000
SR-9	Evaluate Traffic Striping on SR-9 going up hill east of City				Roadway	$1,000
SR-17	Steep Side Slopes along SR-17 from 500 North to 800 North, Retaining Walls	500 North	800 North		Safety	$3,000,000
SR-9	Advance Warning Signage SB crossing Virgin River Bridge (forewarning lane drop)				Signage	$1,000
SR-17	Widen and Improve SR-17 from Toquerville to LaVerkin			1 Mile	Roadway	$1,000,000
SR-9/SR-17	Landscape/ Beautification at SR-9/SR-17 Junction				Enhancement	$200,000
	Local Streets Projects					
Local	Sidewalk Improvements Citywide	Citywide		$50,000 Per Block	Sidewalk	
Local	Parking Improvement along 195 West (Safety by Head start) Parking Restrictions???	195 West			Roadway	$10,000
Local	Add Dead-End Street Signs where applicable	Citywide			Signage	$1,000
Local	New Road, extend 300 South to Pheasant Glen Subdivision	300 South	Pheasant Glen Subdivision		New Road	$250,000
Local	New Road, extend 160 West from 200 North to SR-9 (Center Street)	200 North	Center Street		New Road	$250,000
Local	New Road, extend 250 West to SR-9 (Center Street)	250 West	Center Street		New Road	$250,000
Local	New Road, extend Main Street from 600 North to future Gravel Pit Development	600 North			New Road	$750,000
Local	Improve/Widen and extend 100 East (Valley View Drive) to SR-9 (500 North)	100 North	500 North		Roadway	$1,500,000
Local	Roadway Improvement 100 South				Roadway	$500,000
Local	Roadway Improvement 200 North				Roadway	$500,000
Local	Improve/Widen 480 South from SR-9 (500 North) to East				Roadway	$500,000
	Pedestrian/ Bicycle/ATV Projects					
Local	Citywide Bike and Trails Plan	Citywide			Bike/Ped	$10,000
Local	Open Tunnel to Sand Traps as Pedestrian Trail				Bike/Ped	$180,000
Local	Citywide ATV Routing Plan	Citywide			Study	$10,000
SR-9	LaVerkin-Hurricane Pedestrian Walking Bridge				Safety	$4,000,000
SR-9	Keep School Zone Lights in addition to New Signal at SR-9 (Center Street)	Center Street			Safety	$2,000
SR-9	Future School Crossing at SR-9 (500 North) and Main Street	Main Street			Safety	$150,000
	State Street (SR-9) Beautification Project					
SR-9	Gateway Features at each end of City			2	Enhancement	$400,000
SR-9	Upgrade Sidewalks				Enhancement	$1,200,000
SR-9	Landscaping				Enhancement	$200,000

SR-9	Lighting				Enhancement	$200,000
SR-9	Parking at Various Locations (Pull Outs)				Enhancement	$1,000,000
	Traffic Signals (ITS)					
SR-9	SR-9 at 480 South (When New School is Built) Future	480 South			Traffic Signal	$150,000
SR-9	SR-9 at Main Street (500 North) Future	Main Street			Signal Study (UDOT)	
	Studies					
Local	Alternate Vehicle Route Study, Hot Springs Bridge				Study	$150,000
Local	Study Feasibility using Hot Springs Bridge for Multi-use Trails				Study	$25,000
SR-9	Study State Street Speed throughout City				Speed Study (UDOT)	
SR-9	Safe Routes to School Study near Virgin River Bridge				Safety	$2,000
Local	Study possible By-Pass Routes from LaVerkin to Leeds, Other Communities				Study	$150,000
SR-9	Access Plan for Top Side Development onto SR-9				Study	$25,000
Local	Master Streets Plan/ Circulation Plan, include corridor near 500 West				Study	$20,000
Local	Transit Study to Link LaVerkin to Cedar City and St George, Zion NP				Study	$15,000
				Estimated Total Needs Costs		$25,623,000

* Review Ordnance/Process for New Developments to accommodate Traffic Circulation
* Preserve the Natural Scenic Beauty of Top Side by working with Developers.

4.3. Revenue Summary

4.3.1. Federal and State Participation

Federal and State participation is important for the success of implementing these projects. UDOT needs to see the Community Transportation Plan so that they understand what the City wants to do with its transportation system. UDOT can then weigh the priorities of the city against the rest of the state. It is important for LaVerkin City to promote projects that can be placed on UDOT's five-year Statewide Transportation Improvement Program (STIP) as soon as possible. The process for placing projects into the STIP and funding of these projects can be found at UDOT's homepage @ www.udot.utah.gov, Tab on "Doing Business" Select the tab for "Planning and Programming", Here you will find a subtopic titled "Statewide Transportation Improvement Program (STIP)" which describes this program in detail. Additionally coordination with UDOT's Region Director and Planning Engineer will be practical.

4.3.2. City Participation

The City will fund the local LaVerkin City projects. The local match component and partnering opportunities vary by the funding source.

4.4. Other Potential Funding

Previous sections of this chapter show significant shortfalls projected for the short-range and long-range programs. The following options may be available to help offset all or part of the anticipated shortfalls:

- Increased transportation impact fees.
- Increased general fund allocation to transportation projects.
- General obligation bonds repaid with property tax levies.
- Increased participation by developers, including cooperative programs and incentives.
- Special improvement districts (SIDs), whereby adjacent property owners are assessed portions of the project cost.
- Sales or other tax increase.
- State funding for improvements on the county roadway system.

- Increased gas tax, which would have to be approved by the State Legislature.

- Federal-aid available under one of the programs provided in the federal transportation bill **(SAFETEA-LU).**

Increased general fund allocation means that General Funds must be diverted from other governmental services and/or programs. General obligation bonds provide initial capital for transportation improvement projects but add to the debt service of the governmental agency. One way to avoid increased taxes needed to retire the debt is to sell bonds repaid with a portion of the municipalities' State Class monies for a certain number of years.

Participation by private developers provides a promising funding mechanism for new projects. Developers can contribute to transportation projects by constructing on-site improvements along their site frontage and by paying development fees. Municipalities commonly require developers to dedicate right-of-way and widen streets along the site frontage. A negative side of the on-site improvements is that the streets are improved in pieces. If there are not several developers adjacent to one another at the same time, a continuous improved road is not provided. One way to overcome this problem is for the jurisdiction to construct the street and charge the developers their share when they develop their property.

Another way developers can participate is through development fees. The fees would be based on the additional improvements required to accommodate the new development and would be proportioned among each development. The expenditure of additional funds provided by the fees would be subject to the City's spending limit. However, development fees are often a controversial issue and may or may not be an appropriate method of funding projects.

5. Planning Issues and Guidelines

Provided below is a discussion of various issues with a focus on elements that promote a safe and efficient transportation system in the future.

5.1. Guidelines and Policies

These guidelines address certain areas of concern that are applicable to LaVerkin City's Community Transportation Plan.

5.1.1. Access Management

This section will define and describe some of the aspects of Access Management for roadways and why it is so important. Access Management can make many of the roads in a system work better and operate more safely if properly implemented. There are many benefits to properly implemented access management. Some of the benefits follow:

- Reduction in traffic conflicts and accidents
- Reduced traffic congestion
- Preservation of traffic capacity and level of service
- Improved economic benefits businesses and service agencies
- Potential reductions in air pollution from vehicle exhausts

5.1.1.1. Definition

Access management is the process of comprehensive application of traffic engineering techniques in a manner that seeks to optimize highway system performance in terms of safety, capacity, and speed. Access Management is one tool of many that makes a traffic system work better with what is available.

5.1.1.2. Access Management Techniques

There are many techniques that can be used in access management. The most common techniques are signal spacing, street spacing, access spacing, and interchange to crossroad access spacing. There are various distances for each spacing, dependant upon the roadway type being accessed and the accessing roadway. UDOT has developed an access management program and more information can be gathered from the UDOT website and from the Access Management Program Coordinator.

5.1.1.3. Where to Use Access Management

Access Management can be used on any roadway. In some cases, such as State Highways, access management is a requirement. Access management can be used as an inexpensive way to improve

performance on a major roadway that is increasing in volume. Access management should be used on new roadways and roadways that are to be improved so as to prolong the usefulness of the roadway.

5.1.2. Context Sensitive Solutions

Context Sensitive Solutions (CSS) addresses the need, purpose, safety and service of a transportation project, as well as the protection of scenic, aesthetic, historic, environmental and other community values. CSS is an approach to transportation solutions that find, recognize and incorporate issues/factors that are part of the larger context such as the physical, social, economic, political and cultural impacts. When this approach is used in a project the project become better for all of the entities involved.

5.1.3. Recommended Roadway Cross Sections

Cross sections are the combination of the individual design elements that constitute the design of the roadway. Cross section elements include the pavement surface for driving and parking lanes, curb and gutter, sidewalks and additional buffer/landscape areas. Right-of-way is the total land area needed to provide for the cross section elements.

The design of the individual roadway elements depends on the intended use of the facility. Roads with higher design volumes and speeds need more travel lanes and wider right-of-way than low volume, low speed roads. The high use roadway type should include wider shoulders and medians, separate turn lanes, dedicated bicycle lanes, elimination of on street parking, and control of driveway access. For most roadways, an additional buffer area is provided beyond the curb line. This buffer area accommodates the sidewalk area, landscaping, and local utilities. Locating the utilities outside the traveled way minimizes traffic disruption in utility repairs or changes in service are needed.

Federal Highway standard widths apply on the all roads that are part of the state highway system. Also, all federally funded roadways in LaVerkin City and Washington County must adhere to the same standards for widths and design.

Suggested types of cross-sections can be founding in Appendix B.

5.2. Bicycles and Pedestrians

5.2.1. Bicycles/Trails

Bicycles are allowed on all roadways, except where legally prohibited, and as such should be a consideration on all roads that are being designed and constructed, and as roadway improvements are taking place. Adding shoulders to local and state roads would result in an increase in safety and raise the level of interest in bicycling in the

LaVerkin area. Opportunities to increase shoulder width in conjunction with a roadway project should be taken whenever technically, environmentally, and financially feasible. As referenced in Chapter 2 of this Plan, there are organized bicycle tours that pass through LaVerkin and the City may reap an economic benefit by creating roads that are more bicycle-friendly.

The City is encouraged to pursue development of a planned trails system that will accommodate different user types, as referenced in Chapter 2 of this Plan. It is important to note that regardless of the trails system's function, as the bike/trail facilities are planned, designed and constructed, the City should review the connectivity of the trails systems. With input from the community, connectivity of the trails should play an integral role in the decision making process for potential trails projects. In order to enhance the quality of life for those in the community, the trails should be accessible to all users and follow ADA guidelines.

The trails, when constructed, may have slight variances in application type due to possible differences in the terrain at a specific trail location or differing user needs. However, regardless of the design type, the applicable design standards found in the latest version of the AASHTO Guide for the Development of Bicycle Facilities should be followed, as well as the Manual on Uniform Traffic Control Devices (MUTCD) guidelines for appropriate signage of the trails system.

5.2.2 Pedestrians

Every effort should be made to accommodate pedestrians throughout LaVerkin. An opportunity to include accessible sidewalks, while adhering to ADA requirements during construction of other projects is encouraged. For the safety and convenience of pedestrian traffic, sidewalk placement should be free from debris and obstructions or impediments such as utility poles, trees, bushes, etc. The City should conduct a sidewalk inventory to document locations where there may be gaps or safety concerns in the sidewalk system. Effort should then be made to construct and complete the sidewalks where gaps or problems occur. As the City's population grows, developers may be required to include sidewalk in all project plans to better facilitate the additional pedestrian traffic. The interconnectedness of the City's sidewalk system will be paramount as development takes place.

Sidewalks in residential areas should be at least 5-feet wide whenever adequate right-of-way can be secured. This will provide sufficient room and a level of comfort to persons walking in pairs or passing and will specifically allow for persons with strollers or in wheelchairs to pass. On major

roadways, sidewalks at least 6-feet wide and with a 6 to 10-foot park strip are desirable. In pedestrian-focused areas, such as schools, parks, sports venues or theaters, and in hotel and market districts, even wider sidewalks are recommended to accommodate and encourage a higher level of pedestrian activity, especially where tourist use would be expected. To ensure consistency of sidewalks throughout the area, UDOT's approved standard for sidewalks should be followed.

There may be opportunity for the City to make improvements to their sidewalk system through the Utah Department of Transportation's Safe Sidewalk Program, available through the Traffic and Safety Division. The City should contact UDOT's Region Four office for application requirements.

The City should be aware of, and coordinate with, the area schools that are tasked with developing a routing plan to provide a safe route to school. The routing plan is to be reviewed and updated annually. Information regarding the Safe Routes to School program is available by contacting the Utah Department of Transportation's Traffic and Safety Division.

5.3. Enhancement Program

In 2005, the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) created the Transportation Enhancement program. The program has since been reauthorized in subsequent bills (i.e. SAFETEA-LU). The Transportation Enhancement program provides opportunities to use federal dollars to enhance the cultural and environmental value of the transportation system. These transportation enhancements are defined as follows by SAFETEA-LU:

The term 'transportation enhancement activities' means, with respect to any project or the area to be served by the project, any of the following activities if such activity relates to surface transportation: provision of facilities for pedestrians and bicycles, provision of safety and educational activities for pedestrians and bicyclists, acquisition of scenic easements and scenic or historic sites, scenic of historic highway programs (including the provision of tourist and welcome center facilities), landscaping and other scenic beautification, historic preservation, rehabilitation and operation of historic transportation buildings, structures, or facilities (including historic railroad facilities and canals), preservation of abandoned railway corridors (including the conservation and use thereof for pedestrian or bicycle trails), control and removal of outdoor advertising, archeological planning

and research, environmental mitigation to address water pollution due to highway runoff or reduce vehicle caused wildlife mortality while maintaining habitat connectivity, and establishment of transportation museums.

The Utah Transportation Commission, with the help of an advisory committee, decides which projects will be programmed and placed on the Statewide Transportation Improvement Program (STIP). Applications are accepted in an annual cycle for the limited funds available to UDOT for such projects. Information and Applications for the current cycle can be found on UDOT's homepage @ www.udot.utah.gov, tab on "Doing Business" select "Planning and Programming", here you will find a sub-topic entitled "Transportation Enhancement Program". Applications must be received by the UDOT Program Development Office, on or before the specified date to be considered. Projects will compete on a statewide basis.

5.4. Transportation Corridor Preservation

Transportation Corridor Preservation will be introduced as a method of helping LaVerkin City's Community Transportation Plan. This section will define what Corridor Preservation is and ways to use it to help the Community Transportation Plan succeed for the City.

5.4.1. Definition

Transportation Corridor Preservation is the reserving of land for use in building roadways that will function now and can be expanded at a later date. It is a planning tool that will reduce future hardships on the public and the city. The land along the corridor is protected for building the roadway and maintaining the right-of-way for future expansion by a variety of methods, some of which will be discussed here.

5.4.2. Corridor Preservation Techniques

There are three main ways that a transportation corridor can be preserved. The three ways are acquisition, police powers, and voluntary agreements and government inducements. Under each of these are many sub-categories. The main methods will be discussed here, with a listing of some of the sub-categories.

5.4.2.1. Acquisition

One way to preserve a transportation corridor is to acquire the property outright. The property acquired can be developed or undeveloped. When the city is able to acquire undeveloped property, the city has the ability to build without greatly impacting the public. On the other hand, acquiring developed land can be very expensive and can create a negative image for the City. Acquisition of land should be the last resort

in any of the cases for Transportation Corridor Preservation. The following is a list of some ways that land can be acquired.

- Development Easements
- Public Land Exchanges
- Private Land Trusts
- Advance Purchase and Eminent Domain
- Hardship Acquisition
- Purchase Options

5.4.2.2. Exercise of Police Powers

Police powers are those ordinances that are enacted by a municipality in order to control some of the aspects of the community. There are ordinances that can be helpful in preserving corridors for the Community Transportation Master Plan. Many of the ordinances that can be used for corridor preservation are for future developments in the community. These can be controversial, but can be initially less intrusive.

- Impact Fees and Exactions
- Setback Ordinances
- Official Maps or Maps of Reservation
- Adequate Public Facilities and Concurrency Requirements

5.4.2.3. Voluntary Agreements and Governmental Inducements

Voluntary agreements and governmental inducements rely on the good will of both the developers and the municipality. Many times it is a give and take situation where both parties could benefit in the end. The developer will likely have a better-developed area and the municipality will be able to preserve the corridor for transportation in and around the development. Listed below are some of the voluntary agreements and governmental inducements that can be used in order to preserve transportation corridors in the city limits.

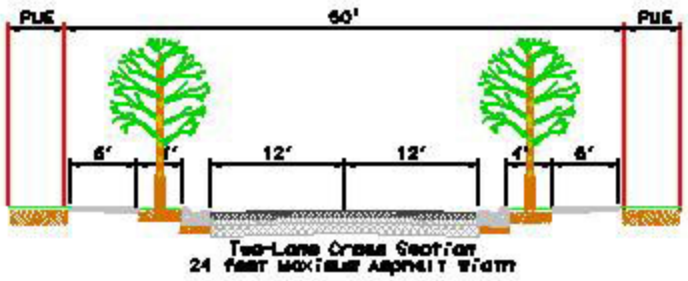
- Voluntary Platting
- Transfer of Development Rights
- Tax Abatement
- Agricultural Zoning

Each of these methods has its place, but there is an order that any government should try to use. Voluntary agreements and government inducements should be used, if possible, before any police powers are used. Police powers should be tried before acquisition is sought. UDOT has developed a toolkit to aid in corridor preservation techniques. This toolkit contains references to Utah code and examples of how the techniques have been used in the past.

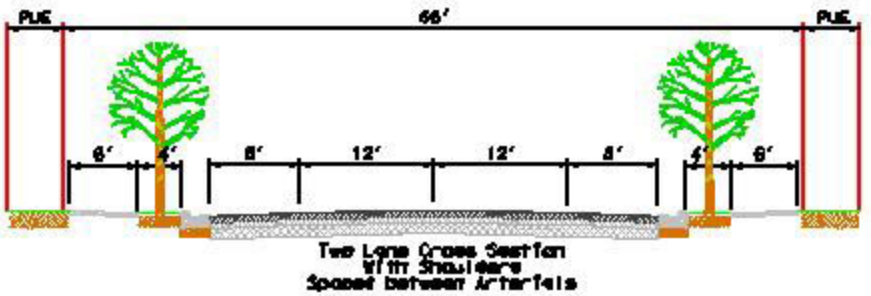
6.1 Travel Forecast Sheets (2003-2030)

6.2 LaVerkin City Zoning Map

6.3 Suggested Types of Street Cross-Sections

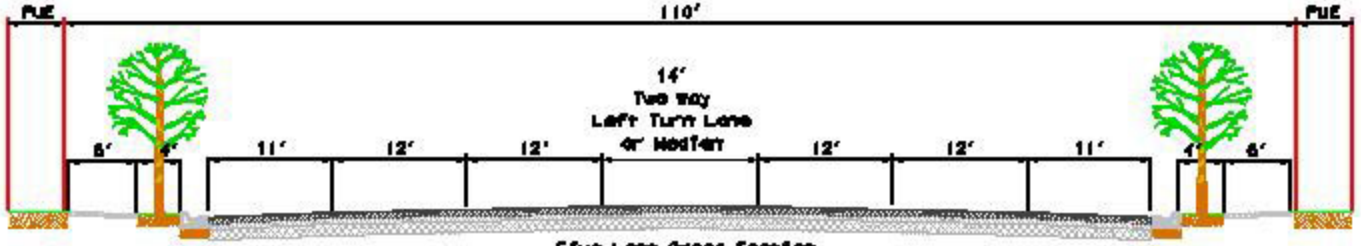


Two-Lane Cross Section
24 feet Maximum Asphalt Width



Two Lane Cross Section
With Shoulders
Spaced between Arterials

Three Lane Cross Section
With Shoulder
Spaced between Arterials



Five Lane Cross Section
With Sholders
Minimum spacing approximately ¼ mile

Notes:

1. Sidewalk Dimension varies from 4' to 6' (See UDOT Std Dwg 08 II Note 3)
2. Public Utility Easement (PUE) dimension varies from 2.5' to 12' Typical
3. Shoulder Dimensions:
   on 80' ROW - varies from 8' to 12'
   on 110' ROW - varies from 10' to 12'
   See AASHTO A Policy on Geometric Design of Highways and Streets

10 5 0 10 20 30

Scale in Feet

Suggested Typical Cross Section

Revised: September 16, 2004